IN THE CLAIMS:

1. (currently amended) A method for ~~administering~~ delivering nucleic acid to ~~express a gene product in~~ cells in a tissue of interest, comprising:

~~treating~~ contacting the tissue with an agent which increases ~~to increase~~ vascular permeability ~~of~~ to an exogenous nucleic acid; and

administering the exogenous nucleic acid to the tissue at a calcium concentration of less than or equal to 500 micromolar, whereby transfer efficiency of the exogenous nucleic acid by the cells in the tissue is increased.

2-4. (cancelled)

5. (currently amended) A method for ~~expressing a gene product in~~ delivering an exogenous nucleic acid to cells of a tissue of interest, comprising:

~~treating~~ contacting the tissue with a vascular permeability increasing agent under conditions of ~~low~~ less than or equal to 500 micromolar calcium ~~concentration~~ to increase vascular permeability ~~of~~ to an exogenous nucleic acid; and

administering the exogenous nucleic acid to the tissue, whereby transfer efficiency of the exogenous nucleic acid to the cells of the tissue of interest is increased.

6-26. (cancelled)

27. (currently amended) A method for delivering a nucleic acid to ~~expressing a gene product in~~ malignant cells in ~~targeted~~ a tissue, comprising:

treating the tissue with a vascular permeability increasing agent to increase ~~vascular permeability~~ delivery of an exogenous nucleic acid to the malignant cells in the tissue; and

administering the exogenous nucleic acid to the tissue under conditions of less than or equal to 500 micromolar calcium.

28-36. (cancelled)

37. (currently amended) A method of providing~~,~~ to a recipient subject~~,~~ donor cells that comprise nucleic acid exogenous to the cells, comprising:

~~treating~~ contacting a tissue comprising the donor cells with an agent that ~~to increase~~ increases vascular permeability to increase transfer efficiency of an exogenous nucleic acid to the donor cells;

administering nucleic acid to the tissue comprising the donor cells under conditions of less than or equal to 500 micromolar calcium; and

introducing the donor cells into the recipient subject to express a gene product ~~of~~ encoded by the nucleic acid.

38. (original) The method of claim 37 wherein an organ comprising the donor cells is transplanted into the recipient subject.

39. (original) The method of claim 37 wherein the donor cells are swine cells or primate cells.

40-46. (cancelled)

47. (currently amended) A pharmaceutical kit comprising:

a permeability agent that can increase vascular permeability ~~of~~ to a nucleic acid in a subject;

a solution having a calcium ion concentration of from about 40 μmol/L to about 500 μmol/L; and

a nucleic acid for administration to a subject.

48-51. (cancelled)

52. (currently amended) A treatment solution which has a calcium ion concentration of from about 40 μmol/L to about 500 μmol/L, comprising:

a) a permeability agent that can increases vascular permeability ~~of~~ to a nucleic acid; and

b) a nucleic acid.

53-54. (cancelled)

55. (currently amended) A treatment solution comprising a nucleic acid in a fluid carrier and having a ~~low~~ calcium ion concentration of from about 40 μmol/L to about 500 μmol/L.

56-60. (cancelled)

61. (currently amended) A method for delivering nucleic acid to cells in tissue of interest, comprising administering to the cells an exogenous nucleic acid under a calcium ion concentration of about 500 μmol/L or less.

62. (currently amended) The method of claim 61 wherein the nucleic acid is administered to the cells under a calcium ion concentration of from about 40 μmol/L to about 500 μmol/L.

63. (previously presented) The method of claim 61 wherein the nucleic acid is administered by perfusion.

64. (previously presented) The method of claim 61 wherein a perfusate of nucleic acid is recirculated and then readministered to the cells.

65. (currently amended) The method of claim 61 wherein a fluid having a calcium ion concentration of from about 40 μmol/L to about 500 μmol/L is used as a perfusate of the tissue.

66. (currently amended) The method of claim 61 wherein the ~~nucleic acid is administered to~~ cells are in a solid cell mass.

67. (currently amended) The method of claim 61 wherein the ~~nucleic acid is administered to~~ cells are in a solid organ.

68. (currently amended) The method of claim 61 wherein the ~~nucleic acid is administered to~~ cells are of an organ selected from the group consisting of heart, lung, kidney, testes, ovaries, skeletal muscle, kidneys, brain or spleen.

69. (previously presented) The method of claim 61 wherein the tissue is cardiac tissue.

70. (previously presented) The method of claim 61 wherein the tissue comprises malignant cells.

71. (currently amended) The method of claim 61 wherein the ~~nucleic acid is administered to~~ cells are in a solid tumor.

72. (previously presented) The method of claim 61 wherein the tissue is mammalian.

73. (previously presented) The method of claim 61 wherein the nucleic acid is administered ex vivo.

74. (previously presented) The method of claim 61 wherein the nucleic acid is administered in vivo.

75. (previously presented) The method of claim 61 wherein the nucleic acid is administered to livestock, poultry, dog or cat.

76. (new) The method of claim 1 wherein the agent is VEGF.

77. (new) The method of claim 1 wherein the agent is bradykinin.

78. (new) The method of claim 1 wherein the agent is serotonin.

79. (new) The method of claim 1 wherein the agent is histamine.

80. (new) The method of claim 5 wherein the agent is VEGF.

81. (new) The method of claim 5 wherein the agent is bradykinin.

82. (new) The method of claim 5 wherein the agent is serotonin.

83. (new) The method of claim 5 wherein the agent is histamine.

84. (new) The method of claim 27 wherein the agent is VEGF.

85. (new) The method of claim 27 wherein the agent is bradykinin.

86. (new) The method of claim 27 wherein the agent is serotonin.

87. (new) The method of claim 27 wherein the agent is histamine.

88. (new) The method of claim 37 wherein the agent is VEGF.

89. (new) The method of claim 37 wherein the agent is bradykinin.

90. (new) The method of claim 37 wherein the agent is serotonin.

91. (new) The method of claim 37 wherein the agent is histamine.

92. (new) The method of claim 47 wherein the agent is VEGF.

93. (new) The method of claim 47 wherein the agent is bradykinin.

94. (new) The method of claim 47 wherein the agent is serotonin.

95. (new) The method of claim 47 wherein the agent is histamine.

96. (new) The method of claim 52 wherein the agent is VEGF.

97. (new) The method of claim 52 wherein the agent is bradykinin.

98. (new) The method of claim 52 wherein the agent is serotonin.

99. (new) The method of claim 52 wherein the agent is histamine.

100. (new) The method of claim 1 wherein the nucleic acid encodes an angiogenic growth factor.

101. (new) The method of claim 1 wherein the nucleic acid encodes an ion channel subunit.

102. (new) The method of claim 1 wherein the nucleic acid encodes an anti-angiogenic agent.

103. (new) The method of claim 5 wherein the nucleic acid encodes an angiogenic growth factor.

104. (new) The method of claim 5 wherein the nucleic acid encodes an ion channel subunit.

105. (new) The method of claim 5 wherein the nucleic acid encodes an anti-angiogenic agent.

106. (new) The method of claim 27 wherein the nucleic acid encodes an angiogenic growth factor.

107. (new) The method of claim 27 wherein the nucleic acid encodes an ion channel subunit.

108. (new) The method of claim 27 wherein the nucleic acid encodes an anti-angiogenic agent.

109. (new) The method of claim 37 wherein the nucleic acid encodes an angiogenic growth factor.

110. (new) The method of claim 37 wherein the nucleic acid encodes an ion channel subunit.

111. (new) The method of claim 37 wherein the nucleic acid encodes an anti-angiogenic agent.

112. (new) The method of claim 47 wherein the nucleic acid encodes an angiogenic growth

factor.

113. (new) The method of claim 47 wherein the nucleic acid encodes an ion channel subunit.

114. (new) The method of claim 47 wherein the nucleic acid encodes an anti-angiogenic agent.

115. (new) The method of claim 52 wherein the nucleic acid encodes an angiogenic growth factor.

116. (new) The method of claim 52 wherein the nucleic acid encodes an ion channel subunit.

117. (new) The method of claim 52 wherein the nucleic acid encodes an anti-angiogenic agent.